What is claimed is:

1. A method comprising:

reducing an input argument x of a function to a range reduced value r according to a first reduction sequence;

approximating a polynomial for a corresponding function of r having a dominant portion $f(A)+\sigma r$; and

obtaining a first result for the function using the polynomial.

2. The method of claim 1, wherein the dominant portion comprises a first term f(A) and a second term σr, where A equals x minus r, and an absolute value of σ is a power of two.

3. The method of claim 1, wherein approximating the polynomial comprises performing a plurality of successive addition/subtraction operations.

4. The method of claim 1, wherein approximating the polynomial comprises using a lookup table to obtain a breakpoint for f(A).

5. The method of claim 1, further comprising restricting the input argument x to values within a predetermined window.

6. The method of claim 1, further comprising restricting the input argument x to values between 2^{-252} and 90112.

7. The method of claim 1, wherein obtaining the first result for the function comprises obtaining sin(x).

8. The method of claim 7, further comprising obtaining a second result for the function using a second input y, wherein y is $\pi/2$ greater than x.

9. The method of claim 8, wherein obtaining the second result for the function comprises obtaining cos(x).

10. The method of claim 9, further comprising obtaining sin(x) and cos(x) using a single instruction multiple data (SIMD) floating-point operation.

11. The method of claim 9, further comprising obtaining the first result and the second result in parallel.

12. An article comprising a machine-accessible storage medium containing instructions that if executed enable a system to:

reduce an input argument x of a function to a range reduced value r according to a first reduction sequence;

approximate a polynomial for a corresponding function of r having a dominant portion $f(A)+\sigma r$; and

obtain a first result for the function using the polynomial.

13. The article of claim 12, further comprising instructions that if executed enable the system to approximate the polynomial wherein the dominant portion comprises a first term $f(A)$ and a second term σr, where A equals x minus r, and an absolute value of σ is a power of two.

14. The article of claim 12, further comprising instructions that if executed enable the system to approximate the polynomial using a lookup table to obtain a breakpoint for $f(A)$.

15. The article of claim 12, further comprising instructions that if executed enable the system to obtain a second result for the function equal to $\cos(x)$, wherein the first result is equal to $\sin(x)$.

16. The article of claim 15, further comprising instructions that if executed enable the system to obtain

sin(x) and cos(x) using a single instruction multiple data (SIMD) floating-point operation.

17. The article of claim 15, further comprising instructions that if executed enable the system to obtain the first result and the second result in parallel.

18. A system comprising:

a processor; and

a dynamic random access memory coupled to the processor including instructions that if executed enable the system to reduce an input argument x of a function to a range reduced value r according to a first reduction sequence, approximate a polynomial for a corresponding function of r having a dominant portion $f(A)+\sigma r$, and obtain a first result for the function using the polynomial.

19. The system of claim 18, wherein the dynamic random access memory further includes instructions that if executed enable the system to obtain a second result for the function equal to cos(x), wherein the first result is equal to sin(x).

20. The system of claim 19, wherein the dynamic random access memory further includes instructions that if executed enable the system to obtain sin(x) and cos(x)

using a single instruction multiple data (SIMD) floating-point operation.

21. The system of claim 20, wherein the dynamic random access memory further includes instructions that if executed enable the system to obtain sin(x) and cos(x) using a single instruction multiple data (SIMD) floating-point operation when a function call requests either of sin(x) or cos(x).

22. The system of claim 20, wherein the dynamic random access memory further includes instructions that if executed enable the system to obtain the first result and the second result in parallel.